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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/736,529	12/17/2003	Amane Mochizuki	Q78606	4327

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EXAMINER	
MCCLENDON, SANZA L	

ART UNIT	PAPER NUMBER
1711	

DATE MAILED: 12/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/736,529	MOCHIZUKI ET AL.	
	Examiner	Art Unit	
	Sanza L. McClendon	1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 September 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *5-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *5-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 09/721,666.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 5-10[1] are rejected under 35 U.S.C. 103(a) as being unpatentable over Tani et al (5,972,807) in view of Yamamoto et al (6387969).

Tani et al teaches a film forming, photosensitive, heat-resistant resin composition including a varnish of a polyimide precursor, a polymerizable monomer, and a polymerization initiator. Tani et al teaches in one embodiment preparing a solution of finely divided particles of an acrylic resin or a phosphazene resin (polymerizable resin) in solution with the polyamic acid which comprises a tetracarboxylic acid dianhydride, aromatic diamine, and polyhydric amine as principle components; evaporating any solvent off causing a particle in matrix microstructure comprising a polyamic

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[1] Note: applicant claims in a product by process format and therefore "even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of the product does not depend on the method of production. Therefore, it the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process—see In re Thorpe, 227 USPQ 967 (Fed. Cir. 1985). Applicant must distinguish the product from those found in the prior art to overcome the rejection for the product.

acid and a curable resin, wherein the polyamic is the matrix portion and the curable resin portions are the particles; then subjecting the polyamic acid to a cyclodehydration reaction to form the polyimide resin. In addition, Tani et al describes that the curable resin portions of the particle in matrix can be selectively cured in selective areas of the structure, and then the polyamic acid and uncured particle regions in areas other than areas that have been selectively cured area (i.e., non-selective areas) can be selectively eluted from the non-selective areas of the structure thereby forming patterns of the particle-in-matrix microstructure. Once this is done the polymer-in-matrix can be subjected to the cyclodehydration reaction to form a patterned polyimide resin film. Tani et al does not expressly teach a step of removing the curable resin, however Tani et al discloses that the size of the phase of curable resin (particles) can be optionally changed depending upon the desired results and other factors because the particles can be reduced with increased temperature and time for the evaporation or heating steps.

Yamamoto et al teaches porous articles and processes for producing said porous article that can be utilized as internal insulators, buffering materials, or circuit substrates and substrates for printed wiring boards in electronic/electrical appliances and electronic parts. Yamamoto et al teaches when an additive, such as polyurethane acrylates, are added to an polymer composition, such as a polyimide precursor, forms a specific microdomain structure The polymer base, which constitutes the continuous phase, can be a polyimide that is obtained by reaction of an organic dianhydride and diamine to synthesize the polyimide precursor and then subjecting said precursor to dehydrating ring closure (curing). The additive and the polymer are dissolved in a solvent and the solution is cast into form, such as a film or sheet. Thereafter the solvent is removed by drying to insolubilize the additive contained in the polymer material, thus a polymer composition which has micro-domain structure is obtained comprising a continuous phase made of the polymer and dispersed therein a discontinuous

phases made of additive having an average diameter smaller than 10 □m. Next, the additive is removed by a combination of at least one operation selected from vaporization and decomposition and an extraction operation while utilizing differences between the additive and the polymer in volatility or thermal decomposability and in solubility in a solvent. As a result, extremely fine cells are formed and a low dielectric constant can be obtained in the film. The urethane acrylate additive is deemed to anticipate applicants dispersible compound in the instantly claimed method.

Tani et al and Yamamoto et al are analogous art because they are from the same field of endeavor that is the art of photosensitive films from use in electronic applications. Therefore, it would have been obvious for a person of ordinary skill in the art to prepare a photosensitive film from a photosensitive composition comprising a polyamic acid, polymerizable monomer, and a polymerization initiator, such as taught by Tani et al, evaporating the solvent from a solution of the previous defined composition to form a continuous phase (polymer phase) and discontinuous phase (monomer particles), such as taught by Tani et al and Yamamoto et al, selectively curing the particles by exposure and developing the non-selectively cured areas, as taught by Tani et al, evaporating the polymer particles, as taught by Yamamoto et al, and finally curing the polyamic acid to obtain a patterned polyimide photosensitive film for using as insulators or other applications of electronic parts. The motivation would have been a reasonable expectation of obtaining a photosensitive film for use in electronic applications having relaxed stress of the film, as taught by Tani et al, and having a low dielectric constant as suggested by Yamamoto et al in the absence of evidence to the contrary and/or unexpected results.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sanza L. McClendon whose telephone number is (571) 272-1074. The examiner can normally be reached on Monday through Friday 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571) 272-1078. The

fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sanza L McClendon
Examiner
Art Unit 1711

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